

NeuroNews

Editor's Note

By Pat Simen

From NSF awards to student presentations at conferences, from community events to Nate Bohm-Levine's '16 honors presentation, we have had an exciting year. We were saddened to see Siobhan Robinson depart our faculty and are grateful for her many contributions to the department, but we were excited to have Brad Carter join our faculty as a visiting assistant professor, and we look forward to being joined by Monica Mariani and Erin Reed in visiting positions in the fall.

SAVE THE DATE:

NOVEMBER 2016, OBERLIN REUNION AT SFN MEETING IN SAN DIEGO

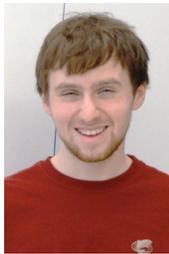
Plan to attend the Oberlin neuroscience reunion at the 2016 Society for Neuroscience meeting in San Diego, November 12-16. We will gather at the Tivoli Bar & Grill, 505 6th Ave, from 4:30-6:30 p.m., on Saturday, Nov. 12, the first day of the conference.

Information will be posted on our website and emailed to neuroscience alumni and friends on our mailing list (please contact kristi.gibson@oberlin.edu if you aren't on our mailing list).

OBERLIN NEUROSCIENCE ALUMNI WIN MULTIPLE NSF AWARDS

Oberlin neuroscience graduates posted another great showing in National Science Foundation graduate fellowships this past year. With three awards and two honorable mentions, our grads are continuing a tradition of nationally recognized excellence among alumni who go on to do graduate research.

FUNDED NSF GRADUATE RESEARCH FELLOWSHIPS



Sam Asinof '12 is a first-year graduate student at UCSD, finishing his final laboratory rotation. His NSF proposal was for a project in Dr. Sreekanth Chalasani's lab. Chalasani studies neural circuits in the nematode *Caenorhabditis elegans*. Since we know the connectivity of *C. elegans*' entire nervous system, as well as the sequence of its genome, it's the ideal model organism to explore how individual genes contribute to whole-nervous system function. For his NSF application, Sam designed a novel reporter that could quickly analyze activity across all of the worm's neurons. He proposed to use this tool to screen for genes necessary for normal neural activity.



Billy Broderick '13 spent a year in Guangzhou, China, doing research as a Luce Scholar after graduation. He also worked as a research assistant at Duke University with Professors Scott Huettel and Guillermo Sapiro, where he analyzed the behavioral and fMRI data from a competitive, dynamic game to investigate the neural correlates of social decision making. He will begin PhD research at New York University's Center for Neural Science this fall, funded by an NSF Graduate Research Fellowship. There he plans to rotate among the labs of David Heeger, Eero Simoncelli, Jonathan Winawer, and Weiji Ma. He intends to use human neuroimaging and computational models to investigate visual representations in the brain and explore how meaning is extracted from visual stimuli.



Matt Hartsock '12 is a graduate student at the University of Colorado, Boulder. At Oberlin, he completed an honors thesis on amygdala evolution with Mark Brafard. He was also active in tutoring, the O.W.L.S. program, and Brain Awareness Week events. At Boulder, he joined the Neuroendocrinology Laboratory of Dr. Robert Spencer. His NSF-funded research project examines daily hormone rhythms in fear learning. He has served as a teaching assistant for undergraduate neuroscience courses, mentored a local high school student for a science fair, and created an interactive poster with his lab for Brain Awareness Week 2016. He says: "Oberlin Neuroscience, I couldn't have done this without you!"

FACULTY AND STAFF ACTIVITIES

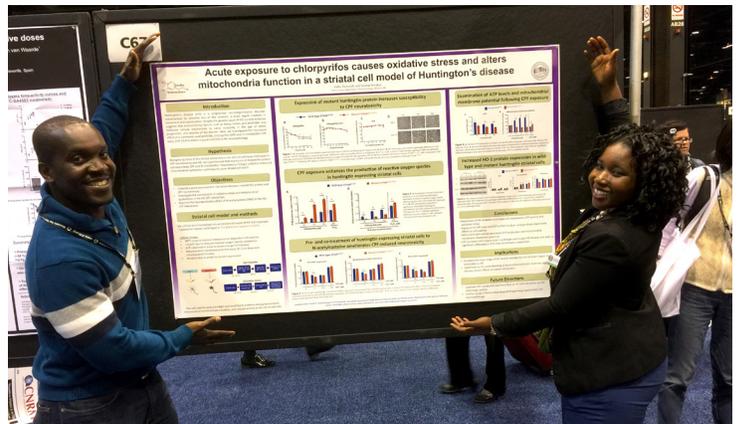
JAN THORNTON, the Claire Emma McGregor '11 Professor of Neuroscience, has been at Oberlin since 1990. In 2015 she gave the fourth annual president's lecture at Oberlin titled "Hormones, the Brain and Memory...Or Why I Can't Find my Car in the Mall Parking Lot." During the 2015-16 academic year she taught a first-year seminar (Science and the Mind), cotaught the introductory neuroscience class, and taught upper-level classes in hormones and neuroendocrine research methods. She also mentored six undergraduate researchers who presented at the annual meeting of the Society for Neuroscience and the International Behavioral Neuroscience Society in Budapest.

MIKE LOOSE, professor of neuroscience, announced that he expects to retire in February 2018. Next year he will again serve as chair of the department and teach his neurophysiology classes for the last time.

LYNNE BIANCHI, professor of neuroscience, has been at Oberlin since 1998; in 2011 she became coordinator of health career programs. She advises neuroscience majors and other students on how to prepare for and apply to medical and allied health profession schools. She also organizes workshops and seminars throughout the year and recently taught the health career practicum. Her research continues to focus on growth factors necessary for early neurite outgrowth in the developing inner ear, particularly the discovery of the importance of cytokines in early inner ear development. She is also completing a textbook on developmental neurobiology. She would love to hear from alumni who are working in the area of developmental neurobiology so she can brag about their work in her book.

TRACIE PAINE was on sabbatical during the 2015-16 year. She started her sabbatical by presenting at the European Behavioural Pharmacology Society Biennial Meeting in Verona, Italy, and later at the Society for Neuroscience Annual Meeting in Chicago. In addition, she conducted research on the role of the inhibitory neurotransmitter GABA in attention and social behaviors at Oberlin with the help of students Marissa Buckley '17, Nils Gudbradson '17, and Gabriel Hitchcock '17.

PATRICK SIMEN joined the department as an assistant professor in fall 2011. This year he cotaught Introductory Neuroscience and Cognitive Neuroscience. His research focuses on testing behavioral and physiological predictions of a random-walk model of decision-making and interval timing in humans and other animals. He published a review of this and other interval timing models in 2015 and a paper on new mathematical predictions of this model in 2016. He is preparing to employ an electronic drum system built by research student Aakash Patel '16 to investigate fast physiological responses to drum strikes using EEG.



From top, L to R: Pat at the neuroscience majors committee 2016 spring picnic; Mike at the picnic, consulting Rachel Dan '17 about raffle rules; Jan delivering the 2015 presidential lecture (standing-room only!), Leslie Kwakye and an Oberlin neuro alum at SFN 2015 in Washington, D.C.; Gunnar Kwakye and Gifty Dominah '14 at SFN 2015.

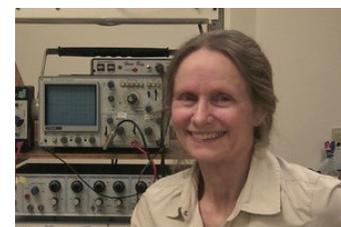
LESLIE DOWELL KWAKYE '06 started her first year as an assistant professor in the neuroscience department in the fall of 2013. This past year she taught a lecture and lab on sensory neuroscience, a senior seminar titled "Mind, Brain, Eyes, and Ears," and the introductory neuroscience lab.

GUNNAR KWAKYE joined the neuroscience department in spring 2012 as a visiting assistant professor and transitioned to a tenure-track assistant professor position in fall 2013. This

year he taught Neurotoxicology and Neurodegeneration, Introductory Neuroscience Lab, and a senior seminar titled Gene-Environment Interactions in Neurological Disorders. Gunnar's lab employs mouse and human neuronal cultures of Huntington's, Parkinson's, and other neurodegenerative diseases to understand the interaction between genetics and the environment in triggering neurodegenerative disease. His lab is studying interactions between pesticides and other neurotoxicant exposures in neurodegenerative disease states and aims to corroborate its findings in in vivo models.

SIOBHAN ROBINSON was on junior faculty leave during the 2015-16 academic year. During leave, she was awarded a Judge's Stipend for the American Biomedical Research Conference for Minority Students in Seattle. Her research student was also awarded a travel stipend and presented their research pertaining to learning and memory within the hippocampal memory system. In addition, Siobhan traveled with a group of Oberlin neuroscience students to the Midwest/Great Lakes Undergraduate Research Symposium in Columbus, Ohio. Due to circumstances independent of the thriving neuroscience community at Oberlin, she accepted a faculty position at Hamilton College in upstate New York, where she will continue to teach and conduct research with undergraduate students who share a passion for neuroscience.

BRAD CARTER joined the department this year as a visiting assistant professor from a postdoc in Cambridge, Mass. He taught a developmental neurobiology lecture and research courses as well as the introductory neuroscience courses. He attended the regional undergraduate neuroscience mGluRs conference at Ohio State with Oberlin students and worked on campus with Eoin Mullaney '17 and Nell Klimpert '18 to build a DIY aquaculture system for a zebrafish colony. Together with Sawyer Brooks '18 and Juvi Ruffatto '18, his lab began experiments into the impact of environmental factors associated with mental health on brain development. Brad also worked with Kira



Kristi in the administrative office and Gigi in the neurophysiology lab

Pinard-Welyczko '17 and Anna Garrison '18 on educational research characterizing undergraduate neuroscience programs across the country. Brad will lead a senior seminar next fall and spring on neurodevelopment and society. He is very interested in having alumni whose careers involve topics related to neurodevelopment participate in the course (e.g. student interview, videochat discussion during class); please contact him if interested in contributing to the course! (bcarter@oberlin.edu).

GIGI KNIGHT, instructional and technical assistant, has been with the neuroscience department almost since its inception. She assists with laboratory instruction, provides technical support, and assists students with their research projects.

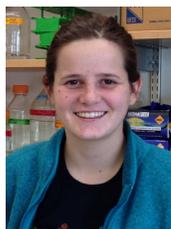
LORI LINDSEY has been the animal caretaker since 2003.

KRISTI GIBSON has been with the department as administrative assistant since 2013. Among her many duties, she assists the chair in coordinating information for hires and reviews, maintains the department office, assists with speaker arrangements, informs neuroscience majors regarding a variety of on- and off-campus opportunities, and helps prepare course catalog information.

FORREST ROSE and **DOROTHY AUBLE** continue to help with facilities management and departmental ordering, respectively.

NSF AWARDS, CONT.

HONORABLE MENTION



Elizabeth Cooke '14 lives in the California Bay Area and works as a technician in Dr. Zachary Knight's lab at UCSE, studying neural circuits that underlie homeostatic behaviors. She was awarded an honorable mention for her 2015 NSF GRFP proposal "Characterizing thermoregulatory circuits in the anterior

hypothalamus," written on a future direction of her project with postdoc Chan Lek Tan on warm-sensing preoptic neurons. This fall, she will attend UCLA as a graduate student in the neuroscience interdepartmental PhD program.



Ruthie Wittenberg '14 was offered admission to nine schools. She agonized over the decision between Columbia and Penn until the last day, but ultimately chose the neuroscience program at Penn, mainly for the opportunity to do rotations. She hopes to try a mouse model of synaptic memory, a primate model of decision-

making and perceptual learning, and a human lab working with frontotemporal degeneration patients, before choosing her dissertation lab.

SCENES FROM THE SPRING 2016 NEURO MAJORS PICNIC

FALL SEMESTER WAS very productive for the Neuroscience Majors Committee. We hosted a mental health panel featuring professors and a psychologist from the counseling center. Our annual Thanksgiving Potluck was held at the home of Vera Rudi '16 with great aplomb. The NMC also held biweekly tea times in Love Lounge, an annual Neuro Game Night, and a study break during finals. Fall members included cochairs Gabe Hitchcock and Martin Mancini, treasurer Jessica Jimenez, t-shirt

coordinator Cassie Dean, liaisons Matthew DiBiase and Bradley Hamilton, and secretary Beatrix Parola.

Spring semester was election season! Cochairs Nora Newcomb and Caroline Oehlerich, treasurer Rachel Dan, marketing chair Emma Parkins, liaisons Erin Ford and Willa Kerkhoff, and secretary Kira Scala hit the ground running with the annual Spring Picnic, which attracted a record turnout and included a raffle with generous donations from Professor Jan Thornton and several local businesses. The NMC



then moved on to volunteer at STEM Night (see page 6).

—Nora Newcomb, cochair

Above: neuro majors Emma Parkins and Willa Kerkhoff

NU RHO PSI WELCOMES NEW MEMBERS

by Jan Thornton, advisor, Oberlin's chapter of Nu Rho Psi

ELEVEN NEW MEMBERS were inducted into the Nu Rho Psi honor society in April. Chris Bell '16, Matt DiBiase '17, Louise Edwards '16, Becca Groher-Jick '16, Bradley Hamilton '17, Jessica Jimenez '17 (president), Christine Khoury '17 (treasurer), Yuka Liu '17, Martin Mancini '17 (vice president), Emma Parkins '17 (secretary), and Vera Rudi '16 join the seniors who had been elected previously:

Nate Bohm-Levine '16, Maya Zeemont '16, and Jason Freedman '16.

Members of Nu Rho Psi organized the second annual Student-Powered Lecture Series in May, in which six neuroscience students gave engaging and fun TED-style talks aimed at creating a basic understanding for non-science majors. Topics included Meditation, ADHD, and Women in Science. The talks provided a platform

for neuroscience majors to share their knowledge with students and faculty.

Nate Bohm-Levine of the Oberlin chapter received the Nu Rho Psi Undergraduate Research Grant for his senior honors project. To be invited for membership, majors must have a minimum GPA of 3.5 in neuroscience and other courses needed to fulfill the major and a cumulative GPA of at least 3.2.

NEURO MAJOR LANDS PRESTIGIOUS WATSON FELLOWSHIP

VERA RUDI '16 WAS ONE OF TWO Oberlin seniors awarded a highly selective Thomas J. Watson Fellowship this spring—a \$30,000 award to support 12 months of independent study and travel outside of the United States. Only 40 Watson Fellows were selected nationwide.

Vera, an aspiring neuroscientist and an accomplished pianist and film actor, will travel to Thailand, India, Japan, and South Africa, where she will immerse herself in meditative cultures to study the ways meditative practices affect cog-

nitive control.

At Oberlin, she conducted research with Professor Michael Loose and spent a winter term at the Kavli Institute for Systems Neuroscience at the Norwegian University of Science and Technology.

“I have been fortunate to take neuroscience classes and labs that engage with material and research at a very high level, and I feel comfortable jumping into research I want to do in the future,” says Vera, who will apply to grad school after her Watson year. Congratulations Vera!



JENNIFER MANNA

STUDENT AND FACULTY PUBLICATIONS

Burnham, V.* and Thornton, J.E. (2015). Luteinizing Hormone as a key player in Alzheimer's disease in aged males and females. Invited review. *Horm Beh.* 76: 48-56.

Olivo R., Burdo J., Calin-Jageman R., Grisham W., Linden M., Rosenberg R., Symonds L., and Thornton J. E. (2015). ERIN: A Portal to Resources for Higher Education in Neuroscience. *Journal of Undergraduate Neuroscience Education*, 13(3), A126-130.

Burnham V.*; Sundby C.*; Laman-Maharg A.*; and Thornton J. A Luteinizing Hormone (LH) homologue acts at the hippocampus and prefrontal cortex to impair spatial memory. Submitted.

Riordan A.*; Schaler A.*; Paine T. and Thornton J. Luteinizing hormone and estradiol affect GABA function and memory loss in an animal model of schizophrenia. Manuscript in preparation.

McGregor, C.*; Riordan A.*; and Thornton J. Estrogen and the cognitive symptoms of schizophrenia: Mechanisms of estrogen action. Manuscript in preparation.

Bohm-Levine N*, Goldberg A*, Varrone E*, Thornton JE (2015). Estradiol and luteinizing hormone affect spatial memory by influencing cell proliferation and expression of brain-derived neurotrophic factor. Scientific abstract and poster presentation for the Annual Meeting of the Society for Neuroscience, Chicago IL, October 2015.

Schaler A*, Lyons C*, Riordan A*, Fried J*, Paine T, Thornton JE (2015). Inhibition of luteinizing hormone rescues recognition memory and raises hippocampal GAD67 in an animal model of schizophrenia. Scientific abstract and poster presentation for the Annual Meeting of the Society for Neuroscience, Chicago IL, October 2015.

Lowes DC*, Paine TA (2015). Postnatal NMDA receptor antagonism models positive and cognitive, but not negative, symptoms of schizophrenia in rats. Society for Neuroscience Abstracts, Chicago IL, 45th Annual Meeting.

Paine TA, Swedlow N, Swetschinski L (2015). Blocking cortical GABAA receptors impairs sociability. European Behavioral Pharmacology Society Abstracts, Verona Italy, Biennial Meeting.

Srivastava, V., Holmes, P. and Simen, P. (in press). Explicit moments of decision times for single- and double-threshold drift-diffusion processes. *Journal of Mathematical Psychology*, Special Issue in honor of R. Duncan Luce.

Balci, F. and Simen, P. (2016). A decision model of timing. *Current Opinion in Behavioral Sciences*.

Simen, P., Vlasov, K.* and Papadakis, S.* (2016). Scale (in)variance in a unified diffusion model of decision making and timing. *Psychological Review*, 123, 151-181.

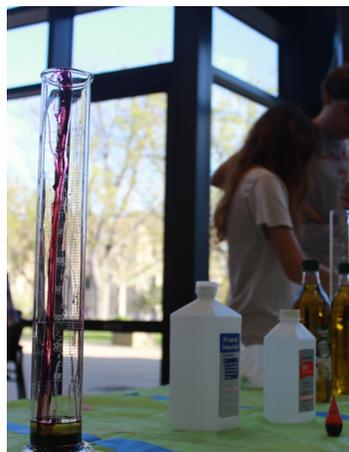
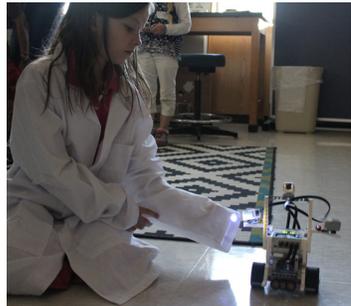
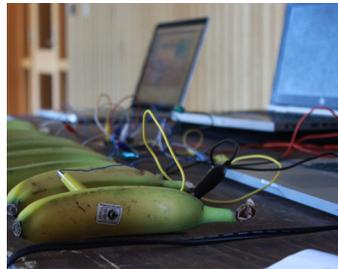
* denotes student researcher



Top: Eric Nestler receives an honorary membership to Nu Rho Psi, the neuroscience honor society, from Jan Thornton. Middle: 2015 neuro honors students Weelic Chong, Dan Lowes, Michelle Johnson, and Gifty Dominah. Bottom: Pat Simen (left) and Alex Riordan '14 at the 2015 Oberlin reunion at the Society for Neuroscience meeting, discussing Alex's grad school experience in theoretical neuroscience at Princeton University.

STEM NIGHT WELCOMES COMMUNITY TO SCIENCE CENTER

OBERLIN'S HOSTED ITS THIRD ANNUAL "STEM NIGHT" for Prospect Elementary students in May, an event sponsored by the America Reads program in the Bonner Center for Service and Learning and by CLEAR (Center for Learning, Education and Research in the Sciences). The goal was to demonstrate to the elementary students and their families the fun stuff that happens in the Science Center and thereby encourage dreams of opportunities in STEM (Science, Technology, Engineering & Math). Faculty and students from biology, chemistry, geology, and physics gave demonstrations. Neuroscience students conducted interesting science experiments, and professors Leslie Kwakye and Pat Simen opened their labs to demonstrate perceptual illusions and Lego robots. It was a great way to show the community the science happening in their midst.



Neuro majors at STEM night: Will Lynch (top right) oversees young chemists. Emma Parkins (first column, third photo) demonstrates a life-size brain model. Juvi Ruffato (second column, second photo) prepares colorful chemistry. Sohail Kamdar (fourth column, fourth photo) describes a sensory perception demo. (Photos by Katherine Potts '19)

ALUMNI NOTES

RACHEL BERGMAN '14 writes: "I was offered a position as clinical research coordinator at Ohio State University Medical Center. The position is with the Nisonger Center, a University Center for Excellence in Developmental Disabilities. Specifically, I am the coordinator for a research study investigating the efficacy and safety of neurofeedback as a treatment for kids with ADHD. I am learning a great deal about the process of clinical research, coordination of research studies, and neurofeedback as a therapeutic technique."

MELISSA DE LOMBAERT '11 writes: "I starting my clinical year in May at the University of Wisconsin-Madison in veterinary medicine, and I've been thinking a lot about the people who helped me get here. I've been so grateful for the wonderful education that I had at Oberlin, and especially the neuroscience professors. Thank you for that. I will be graduating in May 2017 with a doctorate in veterinary medicine and then am planning to go into residency to become a small animal surgeon."

DARCEY HULL '07 writes: "I am working on a DO degree at Ohio University (at the new Cleveland campus) and am very interested in doing research in Cleveland over the summer. There are a few research project ideas bouncing around in my head that I would like to either work on (or join up with someone else's project), if you know of anything or anyone looking for a research assistant!"

CAREY LYONS '15 writes: "I've accepted an offer from the University of Minnesota's graduate program in neuroscience and will start there this July! I'll be doing several rotations in my first year, but going into it, I'm thinking I will join Alessandro Bartolomucci's lab to study stress and its contribution to metabolic diseases."

ARI SCHALER '15 writes: "I am working in Karen Duff's lab [at Columbia University], under a researcher named Natura Myeku, looking at how the proteasome system is effected by Tau and Alzheimer's."

GREG STEVENS '15 writes: "I ended up choosing Columbia's neuroscience program. I really enjoyed the lively environment there and found ~6 professors who I could see myself working for. Thank you so much for your support! Please let me know if I can be of any assistance to you or your students in the future."

KRISSY WELCH '13 writes: "I have accepted admittance at the University of Texas, Southwestern Medical Center's Master of Clinical Nutrition program! I am excited to take advantage of the medical center's clinical and research offerings on my way to becoming a registered dietitian. I will move to Dallas this summer to start the two-year program."

CONGRATS TO OUR SENIOR NEUROSCIENCE AWARD WINNERS

THE NANCY ROBELL MEMORIAL PRIZE

Rebecca Berenbon '16
Nathaniel Bohm-Levine '16
Jason Freedman '16
Vera Rudi '16

NEUROSCIENCE DEPARTMENT PRIZE

Christopher Bell '16
Aakash Patel '16

2015-16 NEUROSCIENCE DEPARTMENT SEMINARS

Erik Herzog
Washington University
What Wakes Us: A Neural Code to Synchronize Circadian Clocks

THE SEYMOUR BENZER LECTURE IN NEUROSCIENCE

Eric Nestler
Icahn School of Medicine at Mount Sinai
Environmental Stimuli and Psychiatric Disorders

Fred Helmstetter
University of Wisconsin, Milwaukee
Neural Mechanisms of Memory, Learning and Emotion

Anumantha Kanthasamy
Iowa State University
Molecular Mechanisms of Neurodegenerative Disorders

Richard Zigmond
Case Western University
Plasticity in the Adult Nervous System

SEND US YOUR NEWS!

NeuroNews is a newsletter for alumni and friends of the Oberlin College Department of Neuroscience. Let us know some of the significant happenings in your lives.

Send comments/news to:
Kristi.Gibson@oberlin.edu
Jan.thornton@oberlin.edu

Webpage: www.oberlin.edu/nsoci

GIFTS FOR 2015-2016

The Department of Neuroscience is indebted to the individuals and families who have generously provided gifts to enhance our academic program. Your contributions have helped students complete their research projects and present their data at national meetings. They have also been used, in part, for the Neuroscience Prize to honor outstanding seniors. We are grateful for your financial support. A special thanks to the Hussman Foundation and Charles “Chuck” Snowdon ’63, who has generously contributed support for student research projects over the last couple of years.

If you would like to make a contribution, please use the online donation form at www.oberlin.edu/giving/donate (please select “Departments” and then “Neuroscience” in the designation box).

You can also send a check payable to Oberlin College to the Office of Development, Oberlin College, 50 W. Lorain St., Oberlin OH, 44074. Please write “neuroscience department” in the memo line.

CONGRATULATIONS NEW GRADS!

Warm congratulations to our 2016 graduating neuroscience majors and their families. We wish you the best of luck in all your future endeavors. Please keep in touch!

Christopher Bell	Ryan Hunter
Rebecca Berenbon	William Lynch
Nathaniel Bohm-Levine	Avalon McKee
Luke Burrows	Aakash Patel
Margaret Carter	Samantha Regan
Olivia Degitz	Vera Rudi
Louise Edwards	Olivia Salas
Cara Forster	Benjamin Shepherd
Jason Freedman	Jiayi (Anastasia) Shou
Joyce Freitag	Patricia Souza
Rebecca Groher-Jick	Emilia Varrone
William Halimou	Justin Williams
Jessica Hubert	Maya Zeemont